



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D205-634-041

Job Sheet 171280



Part No: D205-634-041

Job Qty: 1 ea

Part Name: Replacement Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/30/18

Job Tracking No:

Due Date: 2/19/18

Created By: Michelle Gagnon-Donovan

Type: Stock

Description:

Note: DWG REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD ver:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		2/16/18	0.00	0.00	Start Up Skid tubes		Mbdr
110	CNC Bend Skid tubes	1 pcs		2/16/18	0.00	0.65	CNC Bend Skid tube		Mbdr
120	Skid tubes	1 pcs		2/17/18	0.00	2.89	Skid tubes-2		Mbdr
130	QC	1 pcs		2/17/18	0.00	0.00	QC5		BE
140	Skid tubes	1 pcs		2/17/18	0.00	2.89	Skid tubes-2		JY DAS
150	QC	1 pcs		2/17/18	0.00	0.00	QC10		38 DAS
160	QC	1 pcs		2/17/18	0.00	0.00	QC5		9-88 38
170	HandFinish	1 pcs		2/17/18	0.00	1.31	HandFinish2		SA 18-3-22
180	Powdercoat	1 pcs		2/17/18	0.00	0.34	Powdercoat1		SK 18-3-23
190	QC	1 pcs		2/17/18	0.00	0.00	QC3		BE 18-03-26
200	HandFinish	1 pcs		2/19/18	0.00	1.31	HandFinish4		DAS
210	QC	1 pcs		2/19/18	0.00	0.00	QC5		38
215	DC	1 pcs		2/19/18	0.00	0.00	DC		9-88
220	Packaging	1 pcs		2/19/18	0.00	0.00	Packaging3-1		SMB
230	QC21-FG	1 Ea		2/19/18	0.00	0.00	QC21		21

Part Op 110 - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580 3- scribe batch #110

Descriptions: aft end of tube

120 - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

140 - 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web.Deburr 6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr 7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr

170 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - START TIME: 9:10 OVEN TEMPERATURE: 220 FINISH TIME: 9:40

200 - 1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291, M138787 Sikaflex expire date: 18/04 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 M138787 Sikaflex expire date: 18/04 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: M138711

210 - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

215 - Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG006

220 - Identify and pack for shipping as per PPPD205-634-041 Location: _____ PPP Rev: _____

5049983 x1

lex 2/7/18 8:28 AM Dart.Gagnon.Michelle

Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D2580-1	205 Bent Tube	1 Ea (1 ea)	90-Start up Operation	5047003
D2576-3	Step (Machining Detail)	1 Ea (1 ea)	140-Skidtubes	5156023
D4202-1	Spacer	20 Ea (20 ea)	140-Skidtubes	5039216
ALS7-1032-130	Rivnut	50 Ea (50 ea)	200-HandFinish	
AN3-5A	Bolt	2 Ea (2 ea)	200-HandFinish	
AN3C4A	Bolt	50 Ea (50 ea)	200-HandFinish	
D2594-1	Plug	16 Ea (16 ea)	200-HandFinish	
D2594-3	O-Ring	16 Ea (16 ea)	200-HandFinish	
D2855	Cap	1 Ea (1 ea)	200-HandFinish	
D3564-11	Wearplate Aft	1 Ea (1 ea)	200-HandFinish	
D3564-13	Wearpad Fwd	1 Ea (1 ea)	200-HandFinish	
D3564-5	Wearplate Center	1 Ea (1 ea)	200-HandFinish	
D3564-9	Wearplate Fwd	1 Ea (1 ea)	200-HandFinish	
NAS1149C0332R	Washer	50 Ea (50 ea)	200-HandFinish	
NAS1149D0332J	Washer	2 Ea (2 ea)	200-HandFinish	

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D2580-1	1	5	0
140-Skidtubes	D2576-3	1	45	0
	D4202-1	20	959	0
200-HandFinish	ALS7-1032-130	50	0	0
	AN3-5A	2	263	0
	AN3C4A	50	1,944	0
	D2594-1	16	428	0
	D2594-3	16	581	0
	D2855	1	74	0
	D3564-11	1	22	0
	D3564-13	1	16	0
	D3564-5	1	32	0
	D3564-9	1	25	0
	NAS1149C0332R	50	2,621	0
	NAS1149D0332J	2	4,012	0

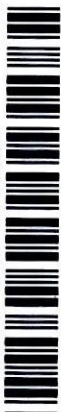
Part Specifications	
Specifications could not be found.	

Michelle

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CANADA
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Email: sales@dartaero.com
www.dartaero.com



Container No: S049983



Part: D205-634-041

Job No: 171280

Serial No/Batch: S049983

Revision: H

Inspector:

Date: 03/12/18

002145

ITEM	QTY -041	QTY -045	QTY -047	QTY -049	PART NUMBER	DESCRIPTION
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4				X	D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2500-1-190	EXTRUSION
21			16	16	D2570	BUSHING
22	1	1	1	1	D2578-3	STEP
23		4			D2579	SPACER
24	16	16	8	8	D2594-1	PLUG
25	16	16	8	8	D2594-3	O-RING
26	1	1	1	1	D2596	206 WEB
27	1	1	1	1	D2555	AFT CAP
28	1	1			D3584-5	WEARSHOE
29	1	1			D3584-9	WEARSHOE
30	1	1			D3584-11	WEARSHOE
31	1	1			D3584-13	WEARSHOE
32	20	20	24	24	D4202-1	SPACER
33			1		D4408-041	WEARPLATE ASSEMBLY
34			1		D4408-043	WEARPLATE ASSEMBLY
35				1	D5081-1	FWD WEARPLATE
36				1	D5081-3	AFT WEARPLATE
60	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
61	50	50			AN3C4A	BOLT
62	2	2	2	2	AN3-5A	BOLT
63			8	8	AN4-45A	BOLT
64	50	50			NAS1149C0332R	WASHER (AN980C10L)
65	2	2	2	2	NAS1149D0332J	WASHER (AN980JD10L)
66			8	8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2586 WEB
POWDER COAT (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
POWDER COAT (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.006 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 33.7 lbs
D2580-045 = 33.7 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8637 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED "P" (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047/-049)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2555 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

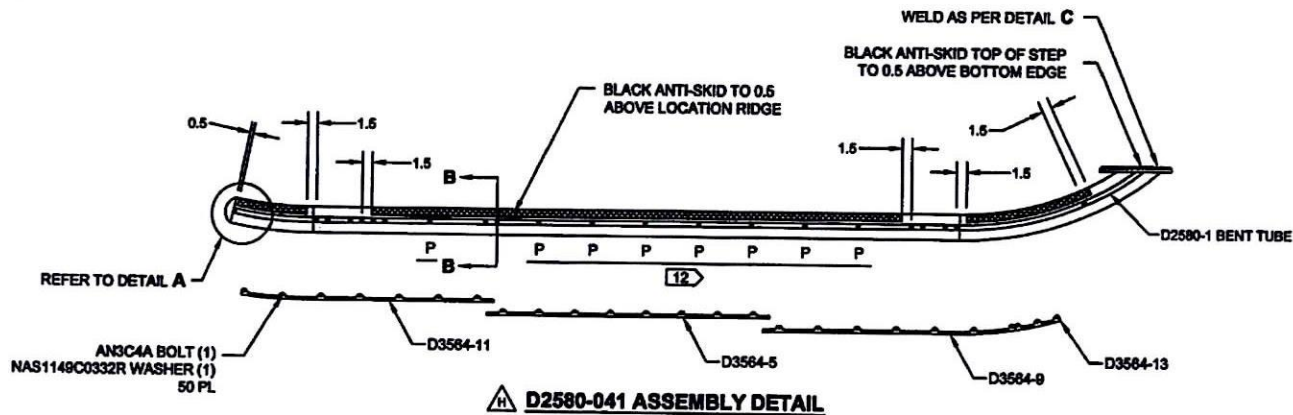
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 171280 *msf*

FEB 08 2018

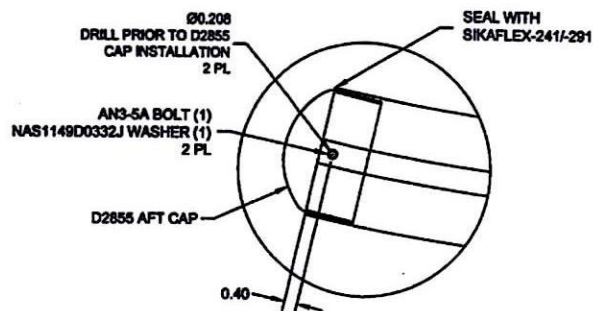
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2017 JUL 05
ECN17-SLR

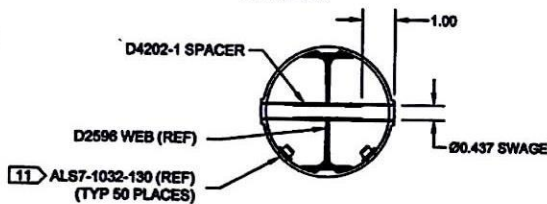
H	SHEET: PL DELETE D3584-1/-5/-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY. SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS	SAD	17.06.09
G	ADDED -046, -047 WEIGHT UPDATED PER DSI 9608	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.08.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8637 WAS T02577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.06
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	06.06.26
B	AS MANUFACTURED	DS	06.12.02
A	NEW ISSUE	DS	06.06.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS	DART AEROSPACE LTD	
DRAWN	SAD	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>msf</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>msf</i>	D2580	SHEET 1 OF 9
APPROVED	<i>msf</i>	TITLE	SCALE
DE APPR.	<i>msf</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1995 BY DART AEROSPACE LTD THIS DOCUMENT IS PREPARED AND CONTROLLED BY DART AEROSPACE LTD. IT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM DART AEROSPACE LTD.	



DETAIL A
SCALE 5X

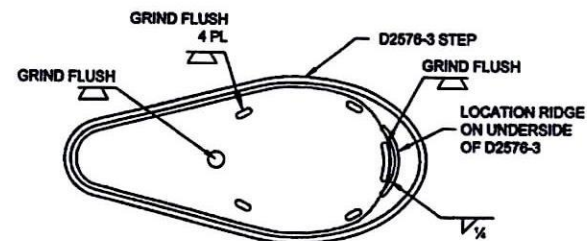


SECTION B-B
SCALE 5X



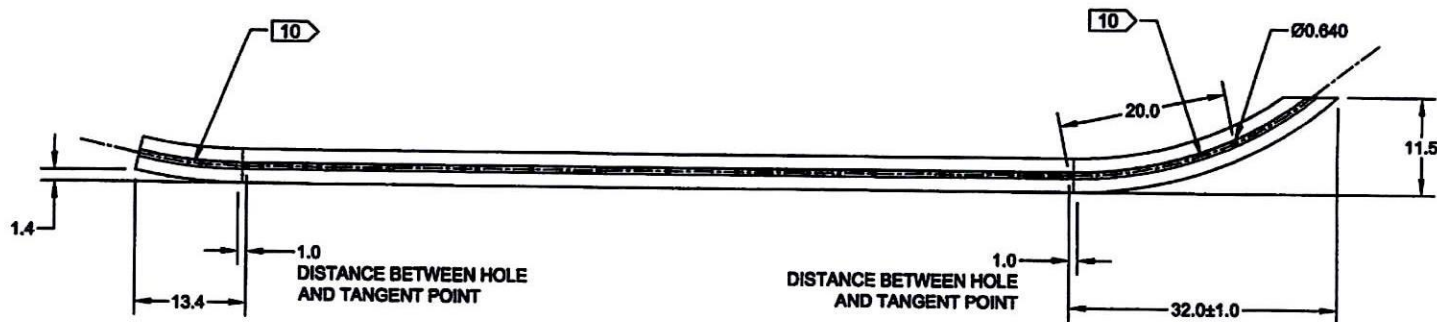
AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (20 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

DETAIL C
SCALE 5X



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2017 JUL 05

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DRAWN	SAD	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 2 OF 6
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1998 BY DART AEROSPACE LTD THIS PROGRAM IS A TRADE SECRET AND IS NOT TO BE DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

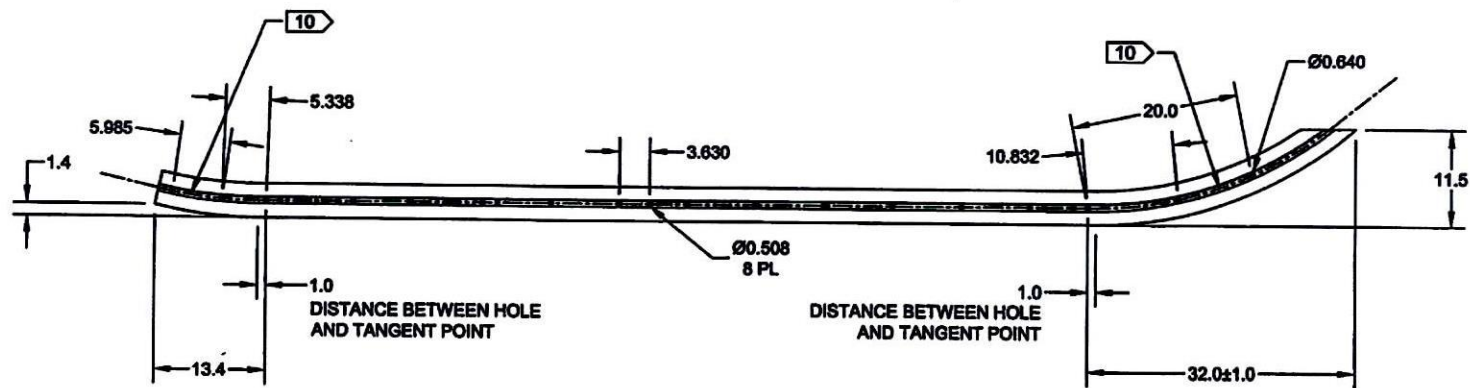


D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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2017 JUL 05 *if*

DESIGN	DS	DART AEROSPACE LTD	
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CHECKED	<i>RS</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>RS</i>	D2580	SHEET 3 OF 9
APPROVED	<i>RS</i>	TITLE	SCALE
DE APPR.	<i>RS</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

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2017 JUL 05 *ap*

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DRAWN	SAD	HAWKESSBURY, ONTARIO, CANADA	
CHECKED	<i>MKS</i>	DRAWING NO.	REV. H
MFG. APPR.	<i>DS</i>	D2580	SHEET 8 OF 9
APPROVED	<i>ST</i>	TITLE	SCALE
DE APPR.	<i>ST</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	17.06.09	COPYRIGHT © 1998 BY DART AEROSPACE LTD	
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DQA:

Date:

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date:

MAY 25 2018Work Order update only ☐

Work Order: <u>171280</u> Part No. <u>D205-634-041</u> NCR No. <u>18-6869</u>		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☒</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☒</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☒	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☒	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☒	Cross tube ☐	Water Jet ☐	Engineering ☐																				
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☒																				
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																				
Large Fab ☐	Composite ☐	Supplier ☐																					
Date: <u>18-3-27</u>		Step #: <u>120</u>		QTY Effective: <u>1</u>		MRB (QSI042) Approval																	
Description Work Order Deviation				Disposition		PD 18-3-27																	
Found at assembly that one wearplate hole was missing. R.C. - rushing - miss of inspection.				Use wearplate and transfer missing hole. Remove any foreign object and touch up elodine.		Completed By																	
						 <u>18-03-27</u>																	
						Lead hand / Supervisor Approval Verification																	
						PD 18-3-27																	
						QC / QA Coordinator Approval																	
						PD 18-3-27																	

Root Cause				FAULT CATEGORY			
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong		
Design ☐	☒ Operator	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	☐ Offset/Setup	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	☐ Supplier	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	☐ Training	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	☐ Use for Testing	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	☐ Poor Information	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	☐ Rushing	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	☐ Product Improvement	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	☐ Process Improvement	Marks/Chatter ☐	☒ Drill Holes	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	☐ Manufacturing Process						
Misidentified ☐	☐ Past Due	OTHER :					